

C & C Timber Sale  
Road Plan Summary  
Application # 74493  
Revised: 2-19-2004  
By Robert Travis, PE

Required reconstruction-2,300 feet  
No construction or abandonment

Purchaser shall apply 114 cubic yards of pit run rock from an existing pit

Purchaser shall purchase and install the following culvert: 18" x 40'

Purchaser maintenance on the following roads:  
G6230, G7010, G7020, S1800, S-1810

Designated maintenance on the following roads:  
S 1700 from 0+00 to 83+60

Bill of Sale & Contract for Forest Products

- Date of road plan 4-9-2003
- Road use authorization on G-6230, G-7010 G-7020, S-1800, S-1810
- Can not block the County roads.
- Current easement (easement # & road number) Rainier roads part of Agreement #23 (S1800)

Forest Practice information:  
RMAP Number: R270086L  
Construct 2,300 feet of road (required & optional, construction, reconstruction)  
Abandon 0 feet of road, steepest side slope & planned abandonment date  
Maximum side slope of construction is 20 percent on reconstruction  
Length of temporary roads and planned abandonment date: no temporary roads.  
Size and location of rock pits: Mainline pit, two acres in NW of the NW Sec 20 T6R11E  
Road maintenance 18,950 feet

SEPA information

Acres of new road = 15 ft \* feet = 0

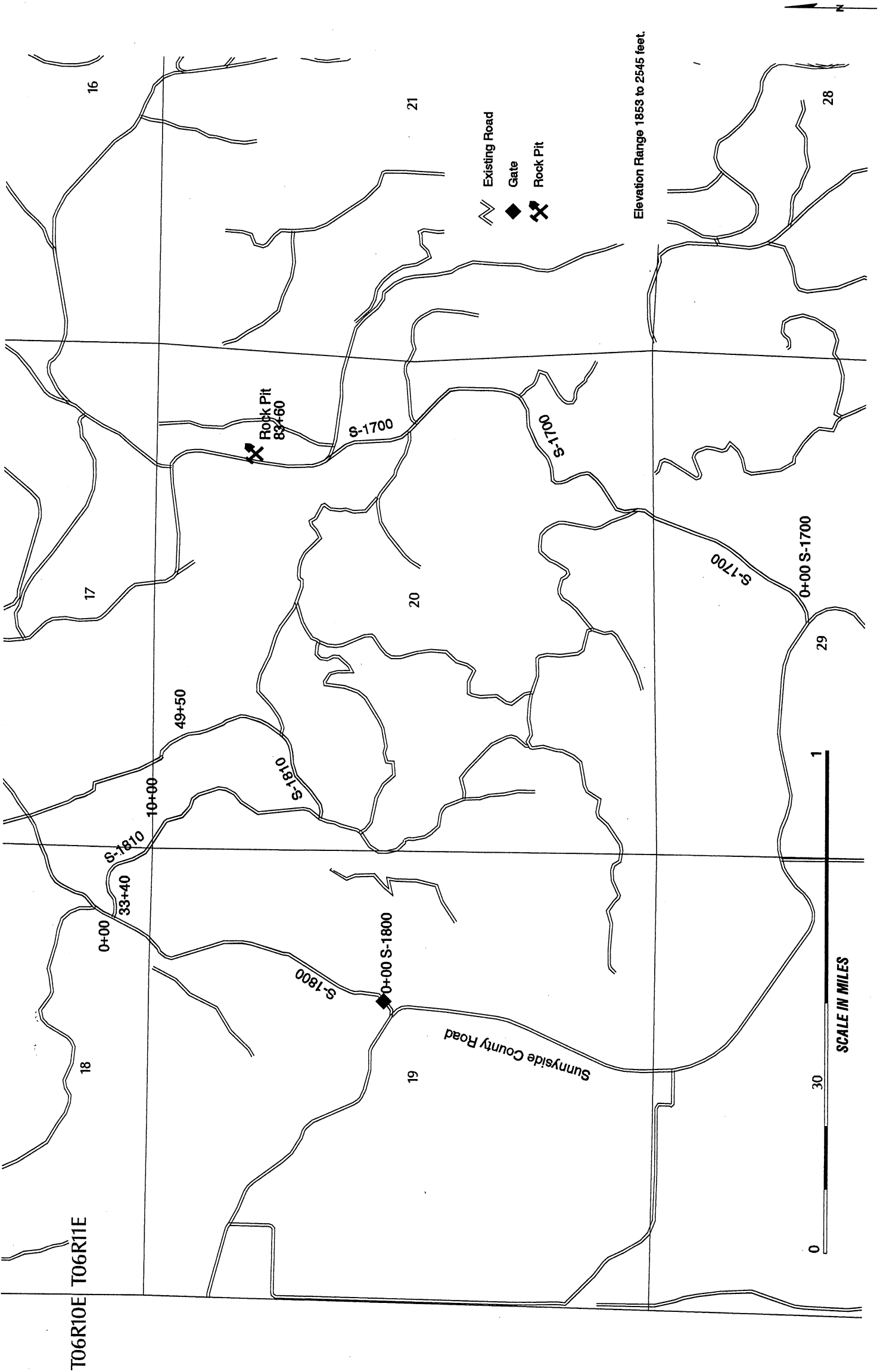
Plan on closing no spurs

Haul route Trout Lake-Laurel Road to Laurel Road to Trout Lake-Glenwood Highway to  
Sunnyside Road to Warner Road to Highway 141 to Highway 141 Alternate

ROAD PLAN

SALE NAME: C&C  
AGREEMENT NO.: 74493  
GRANT: Common School, Forest Board Transfer

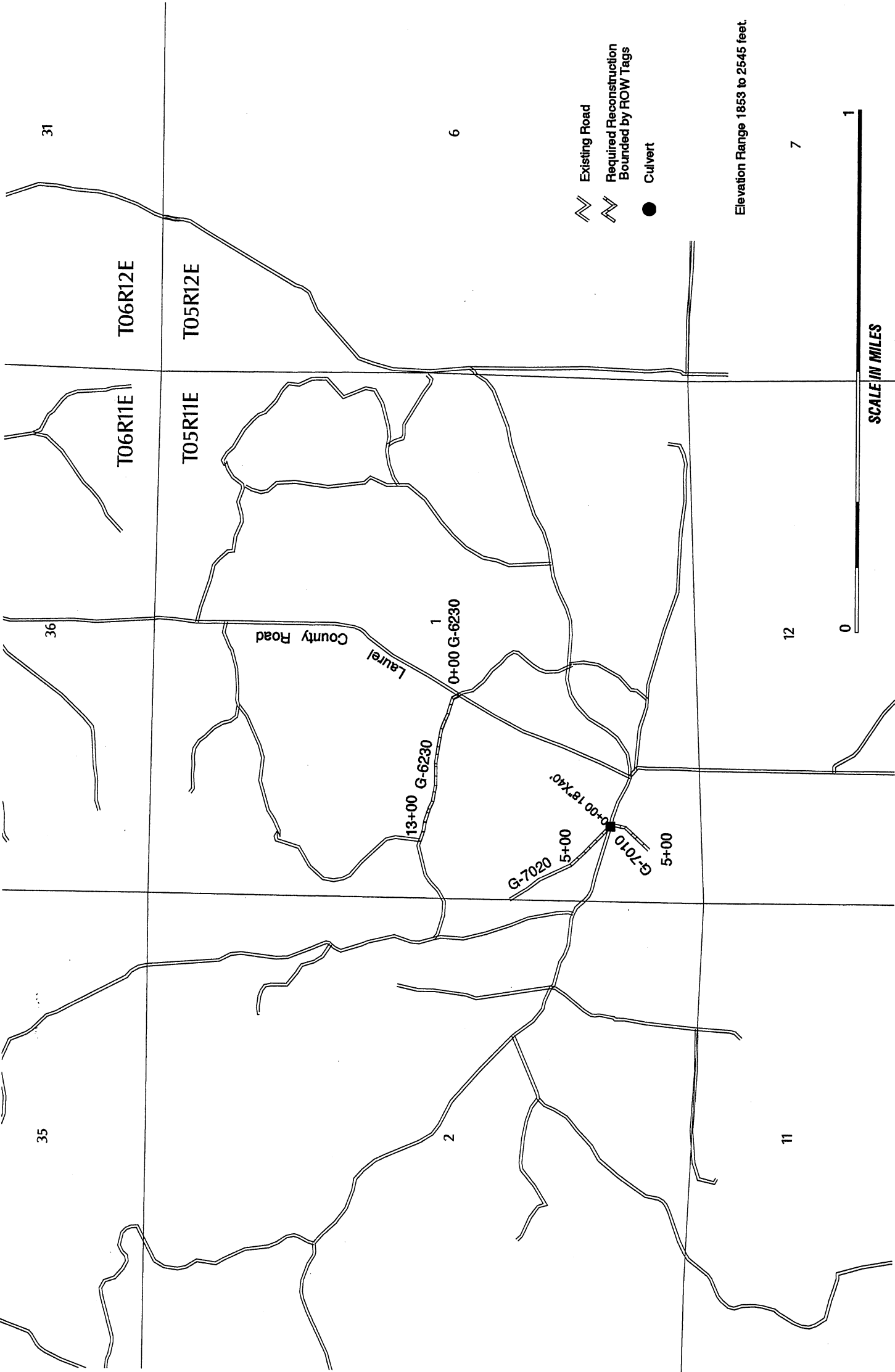
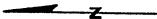
REGION: Southeast  
COUNTY: Klickitat



ROAD PLAN

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REGION: Southeast  
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STATE OF WASHINGTON  
DEPARTMENT OF NATURAL RESOURCES  
DOUG SUTHERLAND, COMMISSIONER OF PUBLIC LANDS

C & C TIMBER SALE ROAD PLAN  
SECTION 18, TOWNSHIP 6 NORTH, RANGE 11 EAST, W.M.  
SECTION 1, TOWNSHIP 5 NORTH, RANGE 11 EAST, W.M.  
Klickitat County

AGREEMENT NO.: 74493                      DATE: 4-9-2003

SECTION 0 - SCOPE OF PROJECT

This project includes, but is not limited to reconstruction including:  
clearing existing excavation and embankment slopes;  
grubbing existing excavation and embankment slopes;  
right of way debris disposal;  
landing construction;  
constructing ditches;  
installing additional culverts;  
widening road segments;  
grading and shaping existing road surface and turnouts;  
acquisition, manufacture and application of rock;

SECTION 1: GENERAL CLAUSES

SECTION 1.1: GENERAL: GENERAL CLAUSES

- 1.1-1  
Clauses in this plan apply to all construction, reconstruction, or pre-haul maintenance including landings unless otherwise noted.
- 1.1-2  
Construction, or reconstruction, or pre-haul maintenance of the following roads is required. All roads shall be constructed or reconstructed or pre-haul maintained on the State's location and in accordance with this Road Plan.
- | <u>Road</u> | <u>Station</u> | <u>Type</u>    |
|-------------|----------------|----------------|
| G-6230      | 0+00 TO 13+00  | RECONSTRUCTION |
| G-7010      | 0+00 TO 5+00   | RECONSTRUCTION |
| G-7020      | 0+00 TO 5+00   | RECONSTRUCTION |
- 1.1-4  
If the purchaser desires a road location or design change, a revised road plan shall be submitted to the State for consideration.
- 1.1-9  
On this plan quantities are minimum acceptable values. Additional quantities required by the State because of hidden conditions or Purchaser's choice of construction season or techniques shall be at the Purchaser's expense. Hidden conditions include, but are not limited to: solid subsurface rock subsurface springs, saturated ground, and unstable soil.

## SECTION 1.2 - GENERAL: CONSTRUCTION CONSTRAINTS

1.2-1

The construction or reconstruction or pre-haul maintenance of any roads specified herein shall not be permitted between December 1<sup>st</sup> and April 1<sup>st</sup> unless authority to do so is granted, in writing, by the Contract Administrator.

1.2-2

Purchaser shall not use roads constructed, reconstructed or maintained under this Road Plan for hauling, other than timber cut on the right of way, without written approval from the Contract Administrator.

### SECTION 1.2.1 - GENERAL: CONSTRUCTION CONSTRAINTS: CONSTRUCTION SEQUENCE

1.2.1-1

Pioneering shall not extend past construction that will be completed during the current construction season. Drainage shall be provided on all uncompleted construction as approved, in writing, by the Contract Administrator.

Clearing and grubbing shall be completed prior to starting excavation and embankment.

Culvert placement in live streams shall precede embankment where culverts are to be placed along natural ground. Temporary diversion culverts shall be provided when designed culverts are elevated above natural ground within embankments.

Culverts and rolling dips shall be installed in completed subgrade as construction progresses.

Subgrade, ditches, culvert and rolling dips installation shall be completed and are subject to written approval by the Contract Administrator prior to rock application.

## SECTION 1.3 - GENERAL: HAULING CONSTRAINTS

1.3-1

Rock hauling shall not be permitted between December 1<sup>st</sup> and April 1<sup>st</sup> unless authorized, in writing, by the Contract Administrator.

1.3-2

Timber haul shall not be permitted between December 1<sup>st</sup> and April 1<sup>st</sup> unless authorized, in writing, by the Contract Administrator.

## SECTION 1.5 - GENERAL: ROAD MAINTENANCE

1.5-1

Maintenance on the following roads shall be performed in accordance with Purchaser Road Maintenance Specifications.

<u>Road</u>	<u>Stations</u>
G-6230	0+00 TO 13+00
G-7010	0+00 TO 5+00
G-1720	0+00 TO 5+00
S-1800	0+00 TO 33+40
S-1810	0+00 TO 49+50

1.5-2

Per Clause C-60, maintenance on the following roads shall be preformed by designated maintainer. Designated maintainer shall be selected by the Contract Administrator.

<u>Road</u>	<u>Station</u>
S-1700	0+00 TO 83+60

1.5-3

Snowplowing shall not be permitted unless authorized, in writing, by the Contract Administrator.

1.5-4

At termination of haul final maintenance shall be performed on the following roads. At minimum, final maintenance shall consist of blading the road with a motor grader, removing berms, crowning or outsloping the road as specified in the Typical Section Sheet and/or Clause 6.1-1, reshaping rolling dips and/or water bars to specification, pulling ditches and cleaning culvert inlets and outlets. The finished road surface shall drain freely and shall be smooth, firm and free of chuckholes.

<u>Road</u>	<u>Stations</u>
G-6230	0+00 TO 13+00
G-7010	0+00 TO 5+00
G-7020	0+00 TO 5+00
S-1800	0+00 TO 33+40
S-1810	0+00 TO 49+50

## SECTION 2 - CLEARING

### SECTION 2.1 - R/W TIMBER

2.1-1

Fell all vegetative material larger than 2 inches dbh or over 4 feet high between the marked right-of-way boundaries or if not marked in the field, between clearing limits specified on the Typical Section Sheet.

## SECTION 3 - GRUBBING

### SECTION 3.1- GRUBBING: GENERAL

3.1-1

All stumps shall be removed that fall between grubbing limits shown on the Typical Section Sheet. Those with undercut roots shall be removed.

3.1-2

Grubbing limits are defined as the entire area between the external limits shown on the Typical Section Sheet.

## SECTION 4 - DEBRIS DISPOSAL AND REMOVAL

### SECTION 4.1 - DEBRIS DISPOSAL AND REMOVAL: GENERAL

4.1-1

Right-of-way debris is defined as all non-merchantable vegetative material larger than

one cubic foot in volume, within the grubbing limits.

## SECTION 4.2 - DEBRIS DISPOSAL AND REMOVAL: PLACEMENT

4.2-2

Right-of-way debris shall not be placed against standing timber.

4.2-3

Right-of-way debris shall be scattered outside the grubbing limits on the downhill side of the road.

## SECTION 5 - EXCAVATION

### SECTION 5.1 - EXCAVATION: GENERAL

5.1-1

Unless controlled by construction stakes or specific design sheets herein, roads shall be constructed in accordance with dimensions shown on the Typical Section Sheet.

5.1-2

Purchaser shall not bury merchantable material.

5.1-3

Road grade and alignment shall conform to the State's marked location and drawings. Grade and alignment shall have smooth continuity without abrupt changes in direction. Maximum grades are: 10 percent favorable and 10 percent adverse or as specified on drawings. Minimum curve radius is 70 feet.

5.1-4

Except as designated on the curve widening list, extra widening on the inside of curves shall be as indicated below.

2 feet extra

80 to 100 foot radius curves.

4 feet extra

50 to 79 foot radius curves.

5.1-5

On the following roads, where sided slopes are 0% to 15%, cut at centerline shall not exceed one foot unless approved by the Contract Administrator.

<u>Road</u>	<u>Stations</u>
G-7110	0+00 TO 5+00
G-7120	0+00 TO 5+00

5.1-6

Existing subgrade shall be widened to the dimensions shown on the Typical Section Sheet.

5.1-7

Roads shall be constructed or reconstructed to the dimensions shown on the Typical Section Sheet, within the tolerance listed below. Tolerance classes for each road are listed on the Typical Section Sheet.

Tolerance Class	A	B	C
Road Width (feet)	+1.5	+1.5	+2.0
Subgrade elevation (feet+/-)	0.5	1.0	2.0
Centerline alignment (feet lt./rt.)	1.0	1.5	3.0

5.1-8  
Excavation slopes shall be constructed no steeper than shown on the following table:

<u>Material Type</u>	<u>Excavation Slope Ratio</u>
Common Earth (on side slopes of 55%).....	1:1
Common Earth (55% to 70% sideslopes).....	¾:1
Common Earth (on slopes over 70%).....	½:1
Fractured or loose rock.....	½:1
Hardpan or Solid rock.....	¼:1

5.1-8D  
Purchaser shall construct ditches. Ditch material shall be used to build up the subgrade as shown on the Typical Section Sheet.

5.1-9  
Excavation and embankment slopes shall be constructed to a uniform line and left rough for easier revegetation.

5.1-10  
Except as construction staked or designed. Embankments shall be widened as follows:

<u>Height at Centerline</u>	<u>Subgrade Widening</u>
Less than 6 feet.....	2 feet
6 feet or over.....	4 feet

5.1-11  
Embankment slopes shall be constructed no steeper than shown on the following table:

<u>Material Type</u>	<u>Embankment Slope Ratio</u>
Common Earth and rounded gravel	1-1/2:1
Angular rock	1-1/4:1
Sandy soil	2:1

5.1-12  
Organic material shall be excluded from embankment.

5.1-14  
Waste material may be deposited adjacent to the road prism on side slopes up to 55 percent if the waste material is compacted and more than 100 feet away from live streams. On side slopes of 55 percent or more, all excavation shall be end hauled or pushed to designated embankment sites. All waste embankments shall be compacted in horizontal layers not exceeding 2 feet.

5.1-21  
Waste material shall not be deposited within 50 feet of a cross drain culvert installation.

SECTION 5.2 - EXCAVATION: PIONEER ROADS

5.2-1  
Road pioneering operations shall not undercut the final cut slope, deposit excavated material outside the clearing limits or restrict drainage.



SECTION 5.3 - EXCAVATION: COMPACTION

5.3-1

All embankment and waste material shall be compacted. The minimum acceptable compaction is achieved by placing embankments in 2 foot or shallower lifts and routing excavation equipment over the entire width of the lifts. Sidehill embankments too narrow to accommodate excavation equipment may be placed by end dumping or side casting until sufficiently wide to support the equipment.

SECTION 5.4 - EXCAVATION: SEDIMENTATION

5.4-1

Sediment bearing runoff shall not be permitted to enter into streams.

SECTION 5.5 - EXCAVATION: SUBGRADE COMPACTION

5.5-1

Finished subgrade shall be shaped as specified in Clause 6.1-1 and as shown on the Typical Section Sheet. Surface shall be graded and compacted to a uniform, firm, rut-free surface to ensure runoff in an even, unconcentrated manner.

SECTION 6 - DRAINAGE

SECTION 6.1 - DRAINAGE: SURFACE DRAINAGE

6.1-1

On the following roads, surfaces shall be shaped to augment the escape of surface runoff.

<u>Road</u>	<u>Stations</u>	<u>Shape of Road Surface</u>
G-6230	0+00 TO 13+00	Crown 4 inches at centerline
G-7010	0+00 TO 5+00	Crown 4 inches at centerline
G-1720	0+00 TO 5+00	Outslope 4 inches in 10 feet

6.1-2

Berms shall be removed from road shoulders to permit escape of runoff.

SECTION 6.2 - DRAINAGE: CULVERTS/DOWNSPOUTS/FLUMES

SECTION 6.2.1 - DRAINAGE: CULVERTS/DOWNSPOUTS/FLUMES: GENERAL

6.2.1-1

Purchaser shall furnish, install and maintain galvanized AASHTO specification No. M36 or corrugated polyethylene tubing AASHTO classification "Type S" and AASHTO designation No. M294 culverts as designated on the Culvert List.

6.2.1-2

Annular corrugated bands and culvert ends shall be used on metal culverts. On culverts 24 inches in diameter and smaller, bands shall have a minimum width of 12 inches; on culverts over 24 inches in diameter, bands shall have a minimum width of 24 inches. Manufacturers approved connectors shall be used for corrugated polyethylene tubing.

SECTION 6.2.2 - DRAINAGE: CULVERTS/DOWNSPOUTS/FLUMES: INSTALLATION

6.2.2-1

Culvert, downspout, flume and energy dissipater installation shall be in accordance with Culvert and Drainage Specification Detail and the National Corrugated Metal Pipe Association Installation Manual for Corrugated Steel Drainage Structures. Polyethylene tubing shall be installed in a manner consistent with the manufacturer's recommendations.

SECTION 6.3 - DRAINAGE: DITCHES

6.3-1

Ditches shall be constructed in accordance with dimensions shown on the Typical Section Sheet and shall drain freely to culverts, rolling dips and ditchouts.

6.3-5

Construction and reshaping ditches, culvert headwalls and catch basins shall be completed prior to timber haul and shall be done in accordance with the Typical Section Sheet and Culvert and Drainage Specification Details.

SECTION 6.7: DRAINAGE: ROLLING DIPS

6.7-1

On the following roads rolling dips shall be constructed in accordance with the Rolling Dip Detail sheet at locations as specified on the Rolling Dip List. **ROLLING DIPS SHALL BE INSTALLED AT THE TIME OF CONSTRUCTION AND SHALL BE CONTINUOUSLY MAINTAINED IN AN OPERABLE CONDITION.** Rolling dips shall be installed with a crawler tractor. Use of other equipment shall not be permitted without prior written approval of the Contract Administrator.

<u>Road</u>	<u>Stations</u>
G-6230	6+20
G-7220	2+00

SECTION 7 - ROCK

SECTION 7.1 - ROCK SOURCE

7.1-1

Rock for reconstruction under this contract may be obtained from an existing pit on state land in the NW1/4 of the NW1/4 of Section 20 Township 6 North Range 11 East at no charge to the purchaser. Development and use shall be in accordance with a written "Pit Development and Reclamation Plan" prepared by the Purchaser and subject to written approval by the Contract Administrator prior to any pit development or use. Pit operations shall be conducted as directed by the Contract Administrator and in accordance with the approved development plan. Upon completion of pit operations, the pit shall be left in the condition specified in the plans and subject to written approval by the contract administrator. Request of use of material from any other source shall be submitted, in writing, to the Southeast Region Engineer or their designee, for consideration.

SECTION 7.2 - ROCK: MANUFACTURE

SECTION 7.2-1 - ROCK: MANUFACTURE: SPECIFICATIONS

7.2.1-8

Pit run rock shall not contain vegetative trash or vegetative debris, and shall not contain more than 10% dirt.

SECTION 7.2.2 - ROCK: MANUFACTURE: MEASUREMENT

7.2.2-1

Measurement of the pit run rock shall be on a cubic-yard-truck measure basis. The Contract Administrator shall measure each truck prior to rock hauling. The Contract Administrator shall periodically require that a load be flattened off and its volume calculated. An average of such volumes for each truck shall be used to tally the volume hauled. The purchaser shall provide and maintain load tally sheets for each truck and shall give them to the contract administrator.

SECTION 7.4.2 - ROCK: APPLICATION: PLACEMENT

7.4.2-1

Apply at least the minimum required rock quantity as shown on the Typical Section Sheet.

7.4.2-2

Subgrade shall be subject to approval, in writing, by the Contract Administrator prior to application of rock.

7.4.2-8

Each lift of rock shall be shaped as specified in Clause 6.1-1 and shall be uniform, firm, and rut-free to ensure surface runoff in an even, unconcentrated manner.

SECTION 7.4.3 - ROCK: APPLICATION: COMPACTION

7.4.3-2

Rock shall be spread and shaped with a motor grader concurrently with rock hauling operations.

SECTION 8 - STRUCTURES

SECTION 8.1 - STRUCTURES: SIGNS

8.1-2

The Purchaser shall be responsible for the purchase and installation of the following road signs. Signs shall comply with the U.S. Department of Transportation, Federal Highway Administration's "Standard Highway Signs" manual.

<u>Road</u>	<u>Station</u>	<u>Sign</u>
Laurel Road	¼ mile North of the G-6230	Log Trucks Ahead
Laurel road	At Trout Lake-Laurel rd	Log Trucks Ahead
Trout lake-Laurel Rd	At Laurel Road	Log Trucks Ahead
Trout lake-Laurel Rd	¼ mile west of G-7020	Log Trucks Ahead

4 signs total

8.5-5

On the following road, Purchaser shall keep gate closed except for during periods of hauling.

<u>Road</u>	<u>Stations</u>
S-1800	0+50

## SECTION 9 - ROAD AND LANDING CLOSURES/DEACTIVATION

### SECTION 9.1 - ROAD AND LANDING DEACTIVATION: ROAD DEACTIVATION

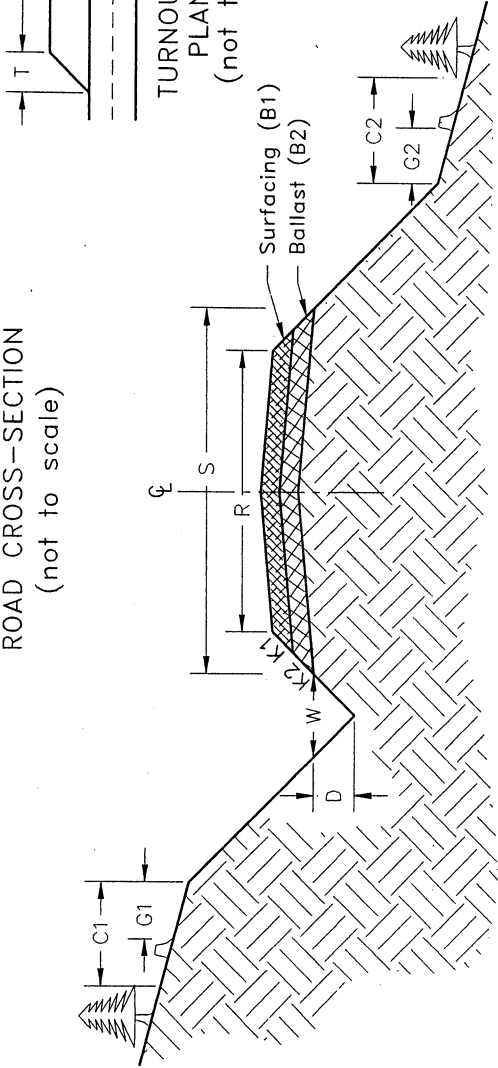
9.1-2

On the following road, an earth barricades shall be constructed in accordance with the Earth Barricade Detail sheet.

<u>Road</u>	<u>Stations</u>
G-7020	5+00

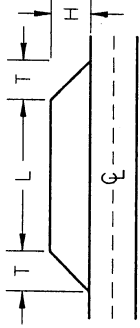


ROAD CROSS-SECTION  
(not to scale)



ROCK LIST

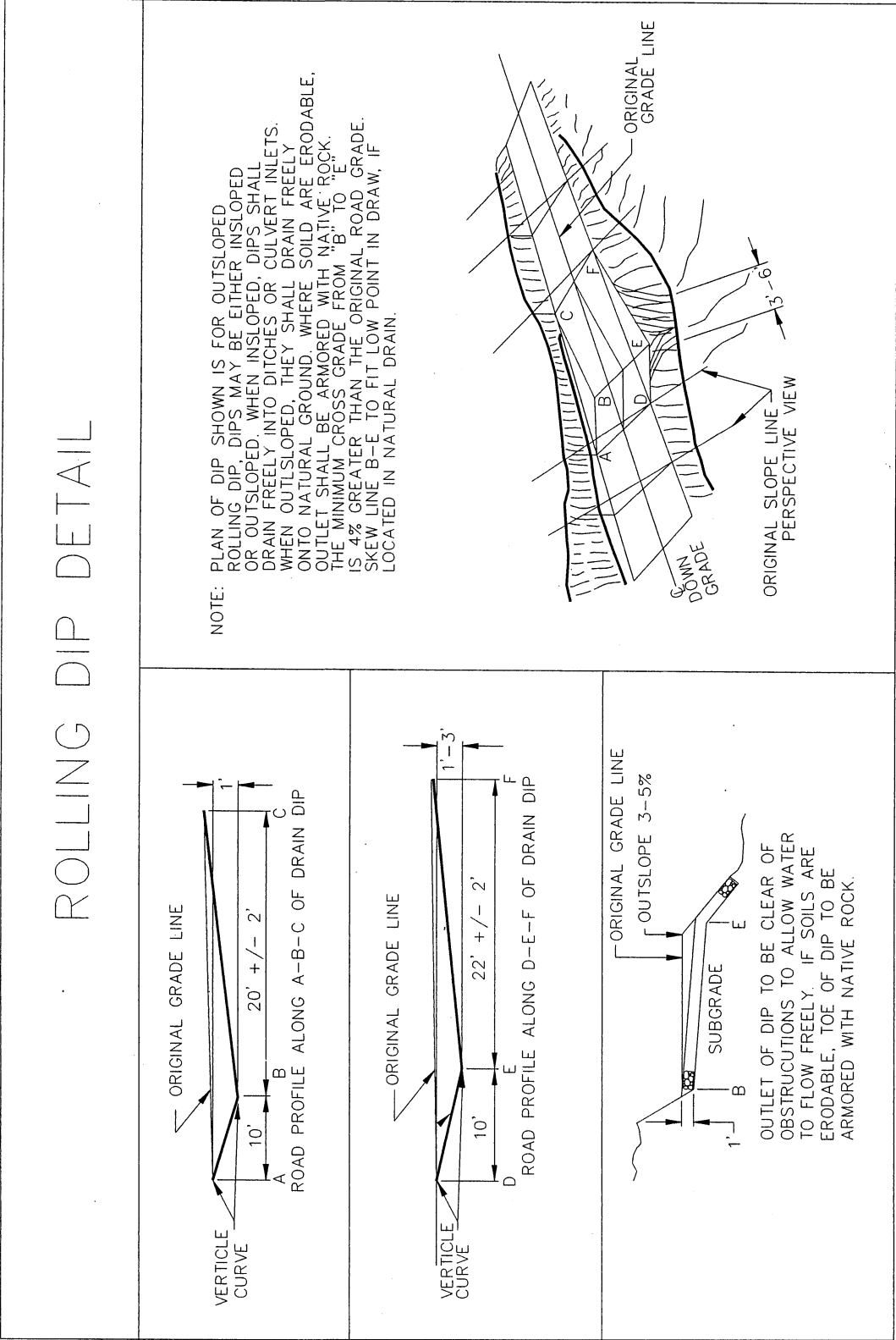
TURNOUT DETAIL  
PLAN VIEW  
(not to scale)



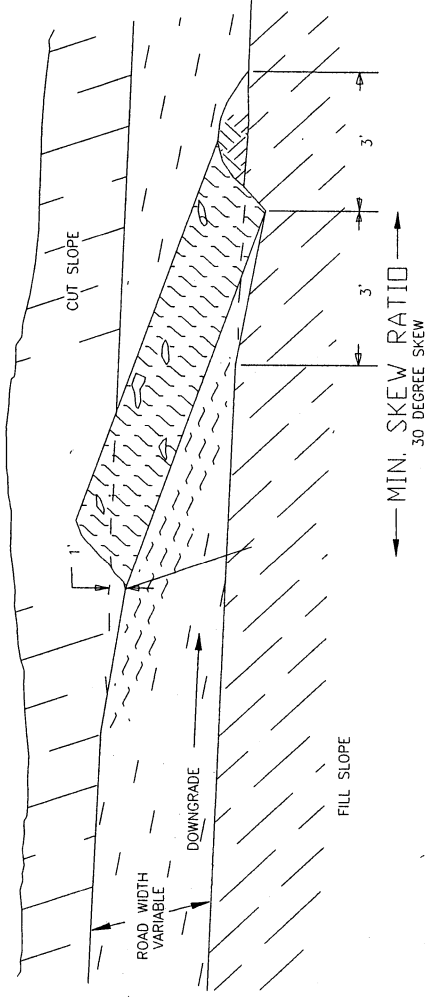
BALLAST

Road Number	From Station	To Station	Rock Slope	Compacted Rock Depth	C.Y./ Station	# of Stations	C.Y. Subtotal	Rock Source	Turnout		
									Length	Width	Taper
			K2	B2					L	H	T
G-6230	0+00	1+00	2:1	9 IN	38	1	38	Mainline pit			
G-7010	0+00	1+00	2:1	9 IN	38	1	38	Mainline pit			
G-7020	0+00	1+00	2:1	9 IN	38	1	38	Mainline pit			

BALLAST TOTAL \_\_ 114 Cubic Yards



# DRIVABLE WATER BAR DETAIL

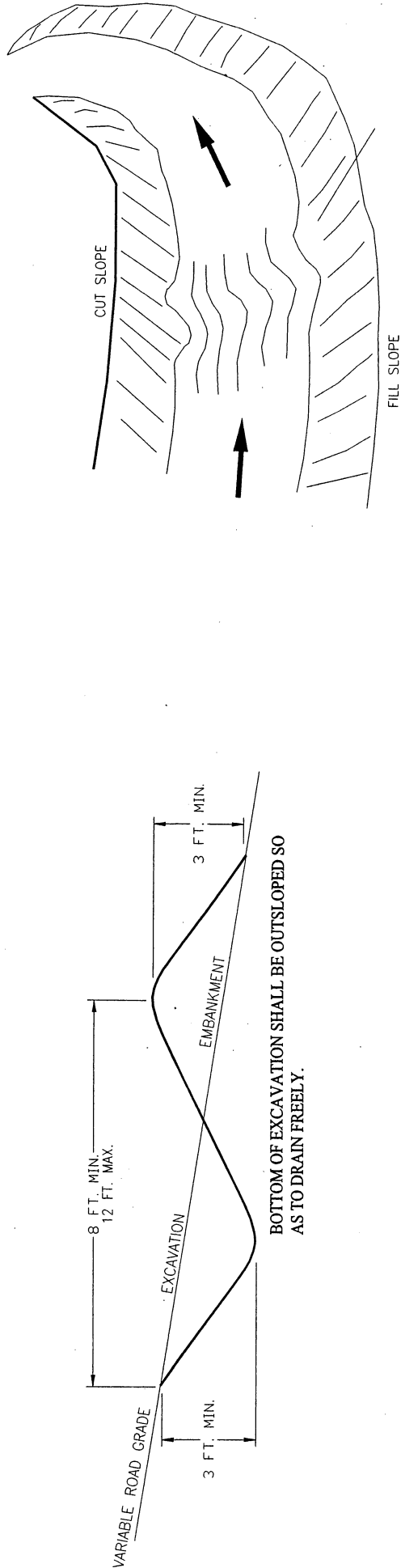


## NOTES

1. ALL WATER BARS SHALL BEGIN AT THE INTERSECTION OF THE ROADBED AND CUT SLOPE AND RUN ACROSS THE ENTIRE WIDTH OF THE ROADBED.
2. ALL WATER BARS SHALL HAVE FREE FLOWING OUTLETS.



# UNDRIVABLE WATER BAR DETAIL

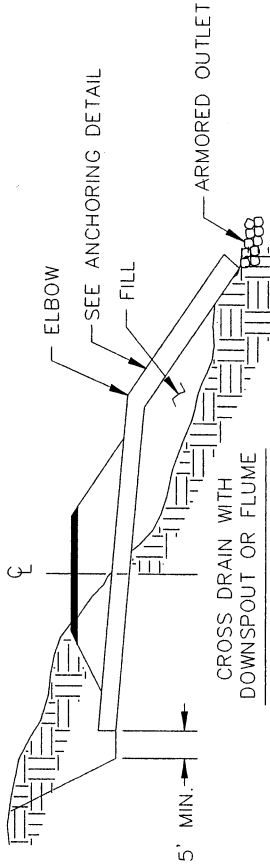
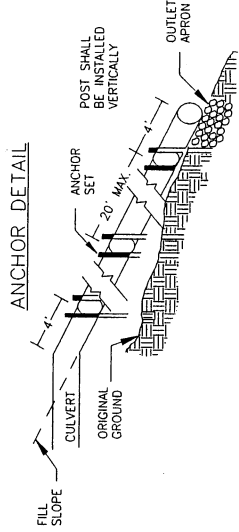
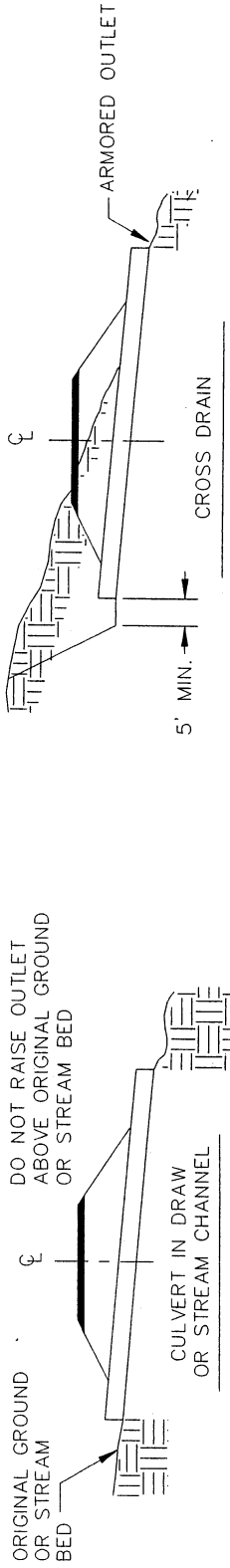


PROFILE VIEW

METHOD OF INSTALLATION

NOTE: EMBANKMENT SIDE OF UNDRIVABLE WATER BAR SHALL BE PLACED IN ON SIDE VEHICLE TRAFFIC WILL BE COMING FROM.

# CULVERT AND DRAINAGE SPECIFICATION DETAIL

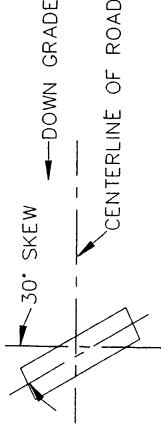


NOTE: MINIMUM COVER OVER CULVERT AT SHOULDER AT INLET SHALL BE 18" OR 1/2 THE CULVERT DIAMETER, WHICHEVER IS GREATER. CATCH BASINS SHALL BE MINIMUM 5' WIDE BY 6' LONG. CUT SLOPES AT CATCH BASINS SHALL BE AS SPECIFIED IN CLAUSE 5.1-8.

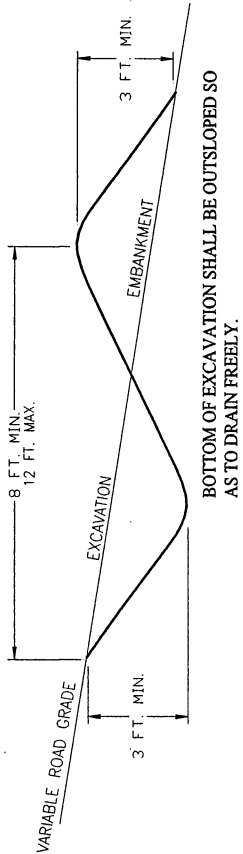
OUTLET DITCH

SECTION A-A

SKIEW DIAGRAM

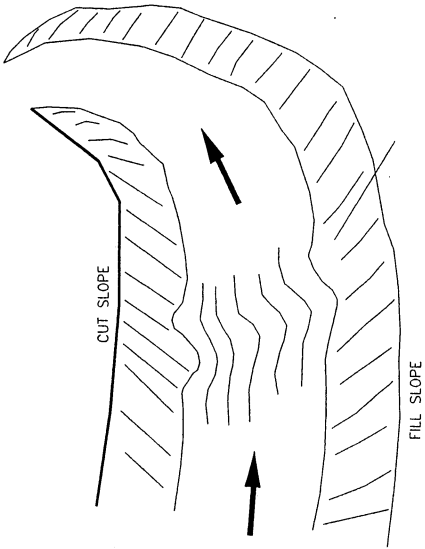


# EARTH BARRICADE DETAIL



PROFILE VIEW

NOTE: EMBANKMENT SIDE OF EARTH BARRICADE SHALL BE PLACED IN ON SIDE VEHICLE TRAFFIC WILL BE COMING FROM.



METHOD OF INSTALLATION

CULVERT LIST

<u>Road</u>	<u>L-Station</u>	<u>Diameter</u>	<u>Gauge</u>	<u>Length</u>	<u>Headwall</u>	<u>Remarks</u>
G-7020	0+00	18	16	40	No	In ditchline

ROLLING DIP LIST

<u>Road</u>	<u>L-Station</u>	<u>Remarks</u>
G-6230	6+20	DRAIN LEFT AT LOW SPOT
G-7220	2+00	DRAIN LEFT AT LOW SPOT

STATE OF WASHINGTON  
DEPARTMENT OF NATURAL RESOURCES

FOREST ACCESS ROAD  
MAINTENANCE SPECIFICATIONS

A. Cuts and Fills

1. Maintain slope lines as constructed. Remove slides from the ditches and roadway. Replace fills to 1 1/2:1 slopes with selected material or as directed. Remove overhanging material from the cut slopes.
2. Material from slides or other sources requiring removal shall not be deposited in streams or at locations where it will erode into streams or water courses.
3. Undesirable slide materials and debris shall not be mixed into the surface material.

B. Surface

1. Grade and shape the road surface, turnouts, and shoulders to the original crown, inslope or outslope as directed to provide suitable traveled surface and surface water runoff in an even, unconcentrated manner.
2. Blading must not undercut the backslope at the bottom of the ditchline or cut into geotextile fabric on the road.
3. If required in writing by the SE Region Engineer, water shall be applied as necessary to abate dust.
4. Desirable surface material shall not be bladed off the roadway.
5. Replace surface material lost or worn away.
6. Remove berms except as directed by the State.
7. Barrel spread soft spots to prevent degradation of geotextile.

C. Drainage

1. Keep ditches and drainage channels at outlets and inlets of culverts clear of obstructions and functioning as intended.
2. Inspect and clean culverts at least monthly, with additional inspections during storms and periods of high runoff. This must be done even during periods of inactivity.
3. Add stable material at the outlet end of the cross drain culvert as needed to stabilize the soil.
4. Headwalls: maintain to the road shoulder level with material that will resist erosion.
5. Prevent sediment bearing surface runoff from entering live streams.

D. Structures

Repair bridges, culverts, cattle guards, fences, and other road structures to the condition required by the construction specifications.

E. End of Season

Do maintenance work to minimize damage from the elements such as blading to insure correct runoff, ditch, and culvert cleaning and water bars.

F. Debris

Remove fallen timber, limbs, and stumps from the slopes or roadway.